

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/DE 2004/002039
filed on September 14, 2004.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0001] with the following amended paragraph:

[0001] ~~Prior Art~~ **Field of the Invention**

Please replace paragraph [0002] with the following amended paragraph:

[0002] The invention is ~~based on a~~ **directed to an improved** high-pressure pump, in particular for a fuel injection device of an internal combustion engine[[,]] ~~as generically defined by the preamble to claim 1.~~

Please add the following new paragraph after paragraph [0002]:

[0002.5] Description of the Prior Art

Please replace paragraph [0003] with the following amended paragraph:

[0003] One [[such]] high-pressure pump for a fuel injection device of an internal combustion engine, [[is]] known from German Patent Disclosure DE 198 44 326 A1,[[.]] ~~This high-pressure pump~~ has a plurality of pump elements, which each have one pump piston that defines a pump work chamber. The pump piston is driven in a reciprocating motion, counter to the force of a restoring spring, by a drive shaft that is driven to rotate. The pump piston is braced at least indirectly on the drive shaft via a sleeve-like tappet, and the tappet is guided in a bore in a housing of the high-pressure pump in the direction of motion of the pump piston.

Applicant: Alfons SCHOETZ et al.
Docket No. R.307217
Preliminary Amdt.

The restoring spring is braced at least indirectly on the pump piston and on the tappet. The restoring spring is intended to keep both the pump piston in contact with the tappet and the tappet in contact with the drive shaft. The tappet must take on both the function of transverse force absorption for the pump piston and the function of bracing on the drive shaft.

Particularly when the bracing of tappet on the drive shaft is effected via a roller supported in the drive shaft, the result is a complex embodiment of the tappet, which may for instance be embodied as a cast or forged part and has a high weight. The attempt is therefore made to split up the functions of guidance and transverse force absorption for the pump piston and the bracing on the drive shaft to separate components. The restoring spring is intended to act on all of the components, but this is made more difficult because of the production tolerances of the components. If there is play between the components, this play is overcome, particularly in the regions of the reversal of motion of the pump piston, or in other words at its inner and outer dead centers; as a result, the components hit one another, causing increased wear of these components.

Page 2, please replace paragraph [0004] with the following amended paragraph:

[0004] ~~Advantages of the Invention~~

SUMMARY AND ADVANTAGES OF THE INVENTION

Please replace paragraph [0005] with the following amended paragraph:

[0005] The high-pressure pump of the invention ~~having the characteristics of claim 1~~ has the advantage over the prior art that the function of transverse force absorption by the tappet and the function of bracing on the drive shaft are performed by the support element, and because

Applicant: Alfons SCHOETZ et al.
Docket No. R.307217
Preliminary Amdt.

of the elastically deformable spring plate, bracing of the restoring spring on the pump piston and on the tappet is assured regardless of production tolerances of these components.

Please replace paragraph [0006] with the following amended paragraph:

[0006] Advantageous features and refinements of the high-pressure pump of the invention are disclosed ~~in the dependent claims.~~

Please replace paragraph [0007] with the following amended paragraph:

[0007] ~~Drawing~~ **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0008] with the following amended paragraph:

[0008] One exemplary embodiment of the invention is shown in the drawing and explained in further detail **herein below, with reference to the drawings, in which:**
~~in the ensuing description. Fig. 1 shows a fuel injection device of an internal combustion engine with a high-pressure pump in a longitudinal section; and Fig. 2 shows an enlargement of a detail, marked II in Fig. 1, of the high-pressure pump.~~

Please add the following new paragraphs after paragraph [0008]:

[0008.2] Fig. 1 shows a sectional view of a fuel injection device of an internal combustion engine with a high-pressure pump in a longitudinal section; and

[0008.4] Fig. 2 shows an enlargement of a detail, marked II in Fig. 1, of the high-pressure pump.

Page 3, please replace paragraph [0009] with the following amended paragraph:

[0009] ~~Description of the Exemplary Embodiment~~

DESCRIPTION OF THE PREFERRED EMBODIMENT

Please replace paragraph [0010] with the following amended paragraph:

[0010] In Figs. 1 and 2, a high-pressure pump for a fuel injection device of an internal combustion engine is shown. The high-pressure pump has a housing 10, which is embodied in multiple parts and in which a drive shaft 12 is disposed. The drive shaft 12 is rotatably supported in the housing 10 via two bearing points, **not shown but** spaced apart from one another in the direction of the axis of rotation 13 of the drive shaft 12. The bearing points may be located in various parts of the housing 10.

Please replace paragraph [0011] with the following amended paragraph:

[0011] In a region located between the two bearing points, the drive shaft 12 has a cam 26, which is embodied eccentrically to the axis of rotation 13 of the drive shaft; the cam 26 may be a multiple cam. The high-pressure pump has at least one, or more than one, pump element 32 located in the housing 10, each with its own pump piston 34, which is driven in a reciprocating motion by the drive shaft 12 via its cam 26 in an at least approximately radial direction to the axis of rotation 13 of the drive shaft 12 and along the longitudinal axis 35 of the pump piston. The pump piston 34 is guided tightly displaceably in a cylindrical bore 36 in the housing 10 or in an insert in the housing 10, and with its face end facing away from the drive shaft 12, it defines a pump work chamber 38 in the cylindrical bore 36. Via a fuel inlet conduit 40 extending in the housing 10, the pump work chamber 38 has a communication with a fuel ~~inlet~~ **supply**, such as a feed pump. An inlet valve 42 opening into the pump work chamber 38 is located at the orifice of the fuel inlet conduit 40 into the pump work chamber 38 and has a spring- loaded valve member 43. The pump work chamber 38 furthermore has a communication, via a fuel outlet conduit 44 extending in the housing 10, with an outlet,

which communicates for instance with a high-pressure reservoir 110. An outlet valve 46, which opens out of the pump work chamber 38 and likewise has a spring-loaded valve member 47, is located at the orifice of the fuel outlet conduit 44 into the pump work chamber 38. One or more injectors 120, located at the engine cylinders, communicate with the high-pressure reservoir 110, and through them fuel is injected into the cylinders of the engine.

Page 4, please replace paragraph [0013] with the following paragraph:

[0013] The support element 50 is inserted into a sleevelike tappet 60, which is guided displaceably in the direction of motion of the pump piston 34, or in other words in the direction of its longitudinal axis 35, in a bore 62 of the housing 10 of the high-pressure pump. The tappet 60 is embodied as hollow throughout and has an end region, toward the drive shaft 12, in which the support element 50 is received with slight play ~~in the tappet 50~~, which **support element** is adjoined, facing away from the drive shaft 12, by an inward- protruding annular collar 64 that fits over the support element 50 on its side facing away from the drive shaft 12.

Page 6, please add the following new paragraph after paragraph [0015]:

[0016] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.